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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,826	10/12/2005	Peter Gutendorf	KRO-10302/36	3927
25006	7590	10/16/2006	EXAMINER	
GIFFORD, KRASS, GROH, SPRINKLE & CITKOWSKI, P.C			HE, AMY	
PO BOX 7021			ART UNIT	
TROY, MI 48007-7021			PAPER NUMBER	
			2858	

DATE MAILED: 10/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/531,826	GUTENDORF, PETER	
	Examiner	Art Unit	
	Amy He	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2006.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2 and 4-14 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 2 and 4-14 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 24 July 2006 is/are: a) ☒ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>4/13/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philipp (U. S. Patent No. 6, 377, 009), in view of Haag et al. (U. S. Patent No. 6, 750,624).

As for claim 11, Philipp discloses a capacitance sensor (combination of 32 and 26 as shown in Figure 1; claim 8) for detection of an obstruction of a motor driven device (14) by an object or a body part (12), comprising:

a generally flat and film-like support (26 or surface for supporting the conductive ink, or the metal foil or the support for the serpentine-laid wire, col. 4, lines 32-34);

an electrode arranged on one side of the support (32, col. 4, lines 32-34); and

a means to measure a capacitance or a capacitance change (capacitance measurement circuit, col. 7, line 62);

wherein ambient air represents the dielectric (the air space between the body parts and the capacitive sensing plates represents a dielectric).

Still referring to claim 11, Philipp does not specifically disclose that the capacitive sensor comprising a multitude of the electrodes; and the capacitive sensor can be deformed in all directions for installation.

Haag et al. discloses a capacitive sensor (12 in Figure 1) comprising a multitude of electrodes (col. 3, lines 29-30), for non-contact obstacle detection using an ultra sensitive capacitive technique (col. 1, line 67-col. 2, line 2); and that the capacitive sensor (12) can be deformed in all directions, for conforming to a three-dimensional contoured surface, so as not to excessively protrude from the surface (col. 3, lines 12-15).

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Philipp to disclose a capacitive sensor comprising a multitude of electrodes, as taught by Haag et al., for non-contact obstacle detection using an ultra sensitive capacitive technique (col. 1, line 67-col. 2, line 2). Moreover, the person of ordinary skill in the art would also find it obvious to modify the design of Philipp's capacitive sensor to be deformable in all directions for installation, as taught by Haag et al, for the purpose of conforming to the three-dimensional contoured surface, so as not to excessively protrude from the surface (col. 3, lines 12-15).

As for claim 13, Philip in view of Haag et al. discloses the capacitive sensor as in claim 11, wherein the support is capable of being mounted to an element of a convertible top, for non-contact obstruction detection on the convertible top, which is not affected by changing environmental conditions (col. 2, lines 7-13).

As for claim 14, Philipp discloses a detection system (10 in Figure 1) for detecting whether objects or body parts (12) are obstructing a motor driven device (14), the system comprising:

a sensor (combination of 32 and 26; col. 4, lines 17-38), each sensor including:

a generally flat and film-like support (26 or the surface for supporting the conductive ink, or the metal foil or the support for the serpentine-laid wire, col. 4, lines 32-34);

electrode arranged on one side of the support (32; col. 4, lines 32-34); and

a means to measure a capacitance or a capacitance change (capacitance measurement circuit, col. 7, line 62);

wherein ambient air represents the dielectric (the air space between the body parts and the capacitive sensing plates represents a dielectric).

a control (combination of 38 and 42 in Figure 1) in communication with the sensors, wherein the control is capable of indicating a change in ambient conditions when the sensor measure a capacitance change (i.e. the capacitive sensor and control device of Philipp is capable of detecting an obstruction due to presence of water, i.e. when it rains, this obstruction is indicative of an ambient/surrounding condition) and the control is capable of indicating an obstruction situation (obstruction by water, dirt or other object or body parts) when a sensor measure a capacitance change.

Still referring to claim 14, Philipp does not specifically disclose a plurality of sensors, each including multitudes of electrodes; and that the control device is in communication with the plurality of sensors, so that the control indicating a change in

ambient conditions when all of the plurality of sensors measure a capacitance change and the control indicating an obstruction situation when a selection of the plurality of sensors measure a capacitance change.

Haag et al. discloses a plurality of sensors (12 in Figure 1) each including multitudes of electrodes (col. 3, lines 29-30) and a control (26 in Figure 1) in communication with the plurality of sensors (12), so that the control (26) is capable of indicating a change in ambient conditions when all of the plurality of sensors measure a capacitance change (i.e. the obstruction detected of all sensors 12 is indicative of a change of an ambient/surrounding condition) and the control (26) is capable of indicating an obstruction situation (obstruction detected of any one of the sensors 12 or all of the sensors 12) when a selection of the plurality of sensors measure a capacitance change.

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Philipp to use a plurality of capacitive sensors each including multitude of electrodes and a control device in communication with the plurality of sensors, so that the control is capable of indicating a change in ambient conditions when all of the plurality of sensors measure a capacitance change, and also capable of indicating an obstruction situation when a selection of the plurality of sensors measure a capacitance change, as taught by Haag et al., for the purpose of obtaining non-contact obstacle detection using an ultra sensitive capacitive technique (Haag reference, col. 1, line 67-col. 2, line 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philipp (U. S. Patent No. 6, 377, 009).

As for claim 12, Philipp discloses a detection device, comprising:

a capacitance sensor system(10 in Figure 1) for detecting whether objects or body parts (12) are obstructing a motor (20) driven device (14), the system including a sensor, the sensor including:

a generally flat and film-like support (surface for supporting the conductive ink, or the metal foil or the support for the serpentine-laid wire, col. 4, lines 32-34);

electrode arranged on one side of the support (electrodes printed with conductive ink on a surface or serpentine-laid wires); and

a means to measure a capacitance or a capacitance change(capacitance measurement circuit, col. 7, line 62);

wherein ambient air represents the dielectric (the air space between the body parts and the capacitive sensing plates represents a dielectric).

Still referring to claim 12, Philipp discloses at least one capacitive obstruction sensing plate at a predetermined portion of the vehicle (col. 8, lines 28-29). Philipp does not specifically disclose a plurality of sensors each comprising multitude of electrodes. A

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person of ordinary skill in the art would find it obvious at the time the invention was made to modify Philipp to use a multitude of sensing electrodes for sensing a change in capacitance, since it has been held that mere duplication of the essential working parts of a device (sensing electrodes) involves only routine skill in the art. See *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). Moreover, It would have been obvious to also modify Philipp to use a plurality of such sensors on other motor driven closure parts of the same vehicle, such as in the door, sunroof, hood or trunk lid etc., so as to prevent the pinching or trapping of a human body part or foreign object in these areas as well (col. 1, lines 32-37).

As for claim 4, Philipp discloses that an obstruction situation is detected when a selection of several sensors are responding (when several selected sensors are used in different areas, obstruction situation in these selected areas are detected when these sensors are responding).

As for claim 5-7, Philipp discloses that the sensing and control are applicable to any sort of panel closure device and other placements for the sensing electrodes are possible (col. 1, lines 32-38; col. 4, lines 8-10 and lines 26-29). Philipp does not specifically disclose that the motor driven device is a convertible top of a convertible vehicle and that the sensors are located in the area of elements that are connected with each other by hinge-like connections and that are elements of a convertible top linkage or a tensioning bow or a convertible top compartment cover or a windshield frame or an area adjacent to a window or between a sealing section or trim parts and their support.

A person of ordinary skill in the art would find it obvious at the time the invention was made to modify Philipp to incorporate the use of the capacitive closure obstruction sensor in a convertible top of a convertible vehicle and placing the sensors at the suitable locations, such as the area of elements that are connected with each other by hinge-like connections and that are elements of a convertible top linkage or a tensioning bow or a convertible top compartment cover or a windshield frame or an area adjacent to a window or between a sealing section or trim parts and their support as claimed, so as to prevent the pinching or trapping of a human body part or foreign object in these desired areas of the convertible vehicle(col. 1, lines 32-38; col. 4, lines 8-10 and lines 26-29).

As for claim 8, Philipp discloses that the capacitive sensor system is interacting with a sensor system that uses measurement based on a different measuring principle (other sensors in addition to the capacitive anti-trap sensor, col. 3, lines 8-10) in order to detect an interference into the range of motion of the convertible top mechanism wherein, after an obstruction situation is recognized, the convertible top motion is controlled by a control device (38) in a safety mode, in which the convertible top motion is stopped or reversed (col. 6, lines 3-4).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Philipp (U. S. Patent No. 6, 377, 009) in view of Haag et al. (U. S. Patent No. 6, 750,624), and in view of Tartagni et al. (U. S. Patent No. 6, 191, 593).

As for claim 2, Philipp in view of Haag et al. discloses the sensor as in claim 11. Philipp in view of Haag et al. does not specifically disclose an automatically readjusting threshold switch.

Tartagni et al. discloses an automatically readjusting threshold switch (19 in Figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Philipp in view of Haag et al. to use an automatically readjusting threshold switch, as taught by Tartagni et al. for placing all capacitive sensing plates in a startup condition (abstract), so as to eliminate any environmental effects.

4. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Philipp (U. S. Patent No. 6, 377, 009) in view of Boisvert et al. (U. S. Pub. No. 2002/0101210).

As for claims 9-10, Philipp discloses other sensors in addition to the capacitive anti-trap sensor (col. 3, lines 8-10) as in claim 8. Philipp does not specifically disclose that the sensors in addition to the capacitive anti-trap sensor is an optical sensor system, wherein a safety mode is started when a malfunction is recognized in the optical sensor system.

Boisvert et al. disclose a dual detection scheme employing an optical sensor system for sensing obstructions for a movable panel (see abstract).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Philipp to use an optical sensor system, as taught by Boisvert et

al., in addition to the capacitive anti-trap sensor, for the added reliability of the obstruction detection, so that when a malfunction is recognized in either the capacitive or optical sensor system, the detection device would be in a safety mode, where the other sensor system is still operable to detect the obstruction.

Response to Arguments

5. Applicant's arguments with respect to claims 2, 11, 13 and 14 have been considered but are moot in view of the new ground(s) of rejection.

6. Applicant's arguments filed with respect to claims 4-10 and 12 have been fully considered but they are not persuasive.

Although Philipp does not specifically disclose a multitude of electrodes, using a multitude of electrodes in a capacitive sensor for obstruction detection is not novel (see for example, Haag et al., col. 3, lines 29-30). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Philipp to use a multitude of sensing electrodes for sensing a change in capacitance, since it has been held that mere duplication of the essential working parts of a device (sensing electrode) involves only routine skill in the art. *See In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)*. If one were to modify the Philipp invention as suggested above, this would provide a capacitive sensor with a multitude of obstruction sensing **electrodes**, not a multitude of obstruction sensing **plates** as argued by the applicant. Moreover, the person of ordinary skill in the art would also find it obvious to modify Philipp to use a plurality of such sensors (each with a multitude of electrodes) on other motor driven closure parts of the same vehicle, such as in the door, sunroof, hood or trunk lid etc., so

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as to prevent the pinching or trapping of a human body part or foreign object in these areas (col. 1, lines 32-37).

With respect to applicant's argument regarding claim 4, the capacitive detection device of Philipp is capable of detecting an obstruction situation when a selection of several sensors are responding (i.e. in Philipp, when any number/combination of sensor/sensors are responding, an obstruction situation is detected, the selection of sensors can be interpreted as any number/combination of the sensors).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (571) 272-2230. The examiner can normally be reached on 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on 571-272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AH

October 10, 2006.

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